



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,644	08/07/2000	Yu-Kung Hsiao	TSMC2000-085	3337

28112 7590 11/25/2002

GEORGE O. SAILE & ASSOCIATES  
28 DAVIS AVENUE  
POUGHKEEPSIE, NY 12603

EXAMINER
----------

KANG, DONGHEE

ART UNIT	PAPER NUMBER
----------	--------------

2811

DATE MAILED: 11/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/633,644

Applicant(s)

HSIAO ET AL.

Examiner

Donghee Kang

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Remarks*

1. Applicant's Amendment and Response to Paper No.6 has been entered. Claims 16-17 have been cancelled. Thus, claims 1-15 are pending in this application.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Therefore, the limitations claimed in claim 1 "an optical spacer" in line 11, "a second planarizing and/or patterned color filter" in lines 14-15, "a third planarizing spacer and/or patterned third color filter" in lines 16-17 must be shown or the feature(s) canceled from the claim.

The limitations claimed in claim 4 "a single overcoat layer comprises an antireflection coating" in line 1 must be shown or feature(s) canceled from the claim.

The limitations claimed in claim 6 "the overcoat layer comprises of a patterned multiplayer dielectric stack" in line 1 must be shown or feature(s) canceled from the claim. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

3. Claims 1, 4 & 6 are objected to because of the following informalities:

Regarding claim 1:

In line 9, the phrase "a patterned and encapsulated metal photoshield layer" should be "the patterned and encapsulated metal photoshield layer".

In line 11, the phrase "planarizing layer" should be "the planarizing encapsulant layer".

In line 13, the phrase "a first color filter layer" should be "the first patterned color filter layer".

In line 13, the phrase "a second planarizing" should be "a second planarizing layer".

In line 13, the phrase "patterned color filter layer" should be "patterned second color filter layer".

In line 16, the phrase "a second planarizing" should be "the second planarizing layer".

In line 16, ", " after color filter layer should be deleted.

In line 16, the phrase "a third planarizing" should be "a third planarizing layer".

In line 19, the phrase "a third planarizing" should be "the third planarizing layer".

In line 22, the phrase "a microlens layer" should be "the patterned microlens layer".

Regarding claim 4: In line 1, the phrase "a single overcoat layer" should be "the overcoat layer".

Regarding claim 6: In line 1, the phrase "the overcoat" should be "the overcoat layer".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims **1, 4, 6, 10, & 12** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim **1**:

The specification does not support the limitations "*forming upon an optical spacer and planarizing layer a first patterned color filter layer*" (lines 11-12). The specification only describes color filter formed on the planarizing layer but not optical spacer (see Figs.4 & 5).

The specification does not support the limitations "*forming upon a first color filter layer a second planarizing and/or patterned color filter layer*" (lines 13-14).

The specification does not support the limitations "*forming upon a second planarizing and/or color filter layer a third planarizing, spacer and/or patterned third color filter layer*" (lines 16-17).

Regarding claim **4**: The specification does not support the limitation "*a single overcoat layer comprises an antireflection coating layer*" (line 1).

Regarding claim **6**: The specification does not support the limitation "*the overcoat comprised of a patterned multilayer dielectric stack*" (line 1).

Regarding claim **10**: The specification does not support the limitation "*the overcoat layer is exposed to ultraviolet or other irradiation to photopolymerize the material*" (line 1).

Regarding claim **12**: The specification does not support the limitation "*ultraviolet or other irradiation is used to expose the overcoat layer...*" (line 1).

Claims **2-3, 5, 7-9, 11, & 13-15** are rejected since each includes the limitations of independent claim 1.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims **1-3 & 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka (US 6,040,591) in view of Baek (US 6,127,668) and further in view of Sano et al. (US 5,514,888).

Otsuka teaches a microelectronic method of fabricating a semiconductor color image device (Fig.5):

a silicon substrate (11) having a matrix of photodiode element (2) formed thereon; forming a metal photoshield layer (13) on the substrate, wherein the metal photoshield layer are periodically spaced to cover the areas between the photodiode elements; forming upon the patterned metal photoshield layer a first optically transparent planarizing encapsulant layer (14); forming upon the first optically

transparent planarizing encapsulant layer a first color filter layer (15) registered with a subset of the photodiode elements; forming upon the first color filter layer a second planarizing layer (16); forming upon the second planarizing layer a patterned microlens layer (17); and forming upon the microlens (hemispherical convex) layer a transmittance overcoat layer (18) with a planar top surface. *See also Col.3, line 56 – Col. 4, line 15.*

Otsuka does not teach depositing a passivating coating encapsulating a metal photoshield layer. However, Baek teaches depositing a passivating coating (43) encapsulating a metal photoshield layer (42). *See Fig.3c & Col.3, line 61 – Col.4, line 7.*

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Baek into the Otsuka's device in order to protect the metal photoshield layer.

Neither Otsuka nor Baek teaches forming upon the second planarizing layer a third planarizing layer. Sano et al. teach forming the third planarizing layer on the second planarizing layer (see Fig.1 & Col.1, line 39 – Col.9, line 35). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Sano et al. into Otsuka's device as modified by Baek in order to optimize focal length of microlens.

### ***Response to Arguments***

8. Applicant's arguments filed September 5, 2002 have been fully considered but they are not persuasive.

Applicant argues that no special treatment or specified conditions are provided for adjustment of the planarizing spacer layer, nor are interface conditions between the color filter layers and planarizing spacer layer by cited prior arts. This is not convincing.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (e.g, for adjustment of the planarizing spacer layer & are interface conditions between the color filter layers and planarizing spacer layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



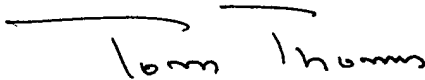
Art Unit: 2811

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DHK  
November 16, 2002

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800